
Lighting: Existing Lighting System Alterations

Description

Currently, §149 (Alterations) requires that lighting be compliant only if more than 50% of the existing lighting systems or circuits are modified.

However, lighting is the easiest building system to retrofit and bring into compliance at reasonable cost. This proposal would require that any alteration to lighting meet §131, §132 and §146 of the *Standards* for the entire space being altered.

An alternative proposal would be to require compliance with §131, §132 and §146 for any alteration where more than 50% of the existing lighting fixtures or circuits are modified, and also require compliance with §146 only for any alteration of more than 10%.

Benefits

By requiring energy efficient lighting in older spaces being renovated, this measure, in essence, requires a retrofit upon renovation, provided that the existing lighting does not meet the *Standards* already. The resulting renovation will use less energy than the previous, non-efficient system.

Environmental Impact

This measure can save considerable energy in older buildings being renovated.

Type of Change

This would be a mandatory measure, and would need to be described in the Manuals.

Measure Availability and Cost

Energy efficient lighting is not expensive. This measure would require work on existing lighting systems that might not otherwise be affected by a mostly superficial renovation.

Because many existing lighting systems are virtually compliant with the *Standards*, this change will not require any work in some cases. The primary impact will be on older buildings, where an energy efficiency retrofit is probably worthwhile anyway.

In general, retrofitting electric lighting costs about \$1.00/ft² to change from T-12/magnetic systems to T-8 systems, with similar costs for converting incandescent luminaires to compact fluorescent ones. Based on recent cost increases and the experience of retrofitting companies throughout California, the likely payback for this type of retrofit is about three years.

Useful Life, Persistence and Maintenance

This measure will be consistent with the existing life and maintenance qualities of these systems. The energy savings related to this measure will persist.

Performance Verification

Performance verification is not required for this measure, other than the standard plan check and field inspection.

Cost Effectiveness

Based on industry experience, lighting systems can be retrofit within a five-year payback, with the majority of systems being retrofitted within a three-year payback.

Analysis Tools

No further analysis tools would be needed to show compliance.

Relationship to Other Measures

This measure relates to measures concerning renovations.

Bibliography and Other Research

The *EPRI Lighting Retrofit Handbook* describes the many retrofits that can make existing lighting systems more energy efficient. The veracity of this idea is supported by the *Advanced Lighting Guidelines* and has been proven by the energy efficiency retrofit industry.